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10/621,201	07/16/2003	Ronald J. Kelley	CM01568LD01	1076

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MOTOROLA, INC
INTELLECTUAL PROPERTY SECTION
LAW DEPT
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EXAMINER	
JACKSON, ANDRE K	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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AUG 2 3 2004

GROUP 2800

Application Number: 10/621,201
Filing Date: July 16, 2003
Appellant(s): KELLEY ET AL.

Randi L. Karpinia
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 07 June 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

This Appeal involves claims 1 and 2.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: The rejection with respect to Hampo et al. 5,747,689 is now withdrawn and therefore moot.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1 and 2 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,589,077	POPE	5-1986
5,759,712	HOCKADAY	6-1998

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 and 2 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable Hockaday in view Pope.

Regarding claim 1, Hockaday discloses a “Surface replica fuel cell for micro fuel cell electrical power pack” a fuel cell (12,69,117,126) capable of operating on hydrogen that is obtained from methanol (Columns 16-17, lines 65-67 through 1-15), a reservoir for storing a supply of methanol (Figure 13). Hockaday does not disclose (a) that the fuel quantity measuring means is located within the reservoir and (b) the fuel quantity measuring means is an immersion capacitive unit which includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. However, Pope discloses a "Liquid level and volume measuring method and apparatus" where the fuel quantity measuring means is located within the

reservoir. Pope's fuel quantity measuring means is an immersion capacitive unit, which includes an immersion capacitive unit having a plurality of pairs of plates in more than one location within the reservoir and electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric (Figure 1). Pope shows a capacitive unit (12; Figure 1 and shown in more detail in Figure 3) having a plurality of pairs of capacitive plates immersed at different locations in the fluid. The fuel level is determined by the dielectric between each pairs of capacitive plates (68), which are separated by an insulating substrate layer (70). These flat capacitive plates, part of multi-segmented probe (12), is mounted within tank (10) and when fuel fills the probe, the capacitance of each of the capacitors changes with a linear relationship from a value where the dielectric is air to a value with fuel as the dielectric. The micro controller (14) instructs the microprocessor (32) to measure the capacitance of the next capacitor below the liquid level and which is completely submerged in fuel. Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to modify Hockaday by substituting the manual sight glass type liquid level sensor with the immersion type capacitive liquid level sensor taught by Pope. The skilled artisan would be motivated to substitute the immersion type capacitive sensor since it is more accurate than a sight glass type sensor.

Regarding claim 2, Hockaday discloses a fuel cell (12,69,117,126) capable of operating on hydrogen that is obtained from a liquid hydrocarbon fuel (Columns 16-17, lines 65-67 through 1-15), a reservoir for storing a supply of liquid hydrocarbon fuel (Figure 13). Hockaday does not disclose (a) that the fuel quantity measuring means is located within the reservoir and (b) the fuel quantity measuring means is an immersion capacitive unit which includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. However, Pope discloses where the fuel quantity measuring means is located within the reservoir. Pope's fuel quantity measuring means is an immersion capacitive unit, which includes an immersion capacitive unit having a plurality of pairs of plates in more than one location within the reservoir and electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric (Figure 1). Pope shows a capacitive unit (12; Figure 1 and shown in more detail in Figure 3) having a plurality of pairs of capacitive plates immersed at different locations in the fluid. The fuel level is determined by the dielectric between each pairs of capacitive plates (68), which are separated by an insulating substrate layer (70). These flat capacitive plates, part of multi-segmented probe (12), is mounted within tank (10) and when fuel fills the probe, the capacitance of each of the

capacitors changes with a linear relationship from a value where the dielectric is air to a value with fuel as the dielectric. The micro controller (14) instructs the microprocessor (32) to measure the capacitance of the next capacitor below the liquid level and which is completely submerged in fuel. Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to modify Hockaday by substituting the manual sight glass type liquid level sensor with the immersion type capacitive liquid level sensor taught by Pope. The skilled artisan would be motivated to substitute the immersion type capacitive sensor since it is more accurate than a sight glass type sensor.

(11) Response to Argument

Appellants have argued that the reference to Figure 13 in the rejection is "vague and ambiguous" and not pointing to a particular part in the prior art. Meanwhile, Hockaday discloses a fuel tank (119) with the description of Figure 13 found in Column 4, lines 65-67 and Column 11, lines 3-28.

Appellants have argued that there is no reference to a reservoir for storing a supply of methanol. In response to this argument Hockaday at Column 11, lines 14-17 discloses a tank (119) (see Figure 13) filled with methanol, which is well known as a hydrocarbon fuel.

Appellants have argued that (119, tank, Figure 3) could not be a reservoir since a needle punctures the tank. Appellants have supplied a definition of reservoir "1) a place where something is kept in store". The tank (119)

of Hockaday stores methanol as stated in Column 11, lines 14-17. "2) part of an apparatus in which liquid is held". The tank (119) of Hockaday holds liquid as suggested in Column 11, lines 14-17. The Examiner agrees that Hockaday discloses that the tank is punctured by a needle (115). However, Appellants seem to be suggesting that since there is a puncture or an opening to make a fuel connection, Hockaday's tank cannot be a reservoir. It should be noted that the Appellants' invention has an opening where an immersion capacitive unit can be placed. In viewing the Appellants' argument, the claimed reservoir would also not be a reservoir. Appellants have argued that Pope describes a "single multiple segment capacitance probe 12" that does not appear to have an immersion capacitive unit comprising multiple pairs of plates located at different locations in the reservoir. Item (12) shown in Figure 1, and shown in more detail in Figures 2-4, has multiple (twenty) flat plate capacitors (60) approximately six inches long and mounted alternately every six inches on opposite sides of common plate (62) extending the length of probe (12). Each of the capacitors (60) includes pairs of plates (68). These flat capacitive plates, part of multi-segmented probe (12), is mounted within tank (10) and when fuel fills the probe, the capacitance of each of the capacitors changes with a linear relationship from a value where the dielectric is air to a value with fuel as the dielectric. The micro controller (14) instructs the microprocessor (32) to measure the capacitance of the

next capacitor below the liquid level and which is completely submerged in fuel.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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August 18, 2004

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